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FILE 'USPAT' ENTERED AT 14:09:19 ON 31 OCT 1997

                WELCOME TO THE
          U. S. PATENT TEXT FILE

=> s beta(w)zeolite?
        158989 BETA
         19038 ZEOLITE?
L1         436 BETA(W)ZEOLITE?

=> s l1 and 423/239?/ccls
           868 423/239?/CCLS
L2           9 L1 AND 423/239?/CCLS

=> d l2 1-9 ti, in, cit, ab

US PAT NO:      5,516,497 :IMAGE AVAILABLE:          L2: 1 of 9
TITLE:          Staged metal-promoted zeolite catalysts and method for
                  catalytic reduction of nitrogen oxides using the same
INVENTOR:       Barry K. Speronello, Belle Mead, NJ
                John W. Byrne, Edison, NJ
                James M. Chen, Edison, NJ

1.  5,516,497, May 14, 1996, Staged metal-promoted zeolite catalysts and
method for catalytic reduction of nitrogen oxides using the same; Barry
K. Speronello, et al., 423/235, 237, 239.2 :IMAGE AVAILABLE:

ABSTRACT:
A zeolite catalyst composition is provided in which a first or upstream
zone of the catalyst has a lower metal (e.g., iron or copper) promoter
loading than the metal promoter moter loading of the second or downstream
zone of the catalyst. The first zone may contain from none up to about 1
percent by weight of the promoter and the second zone may contain from
about 1 to 30 percent by weight promoter. The zeolite may be any suitable
zeolite, especially one having a silica-to-alumina ratio of about 10 or
more, and a kinetic pore size of about 7 to about 8 Angstroms with such
pores being interconnected in all three crystallographic dimensions. The
method of the invention provides for passing a gaseous stream containing
oxygen, nitrogen oxides and ammonia sequentially through first and second
catalysts as described above, the first catalyst favoring reduction of
nitrogen oxides and the second catalyst favoring the oxidation or other
decomposition of excess ammonia.

US PAT NO:      5,417,949 :IMAGE AVAILABLE:          L2: 2 of 9
TITLE:          NO.sub.x abatement process
INVENTOR:       John P. McWilliams, Woodbury, NJ
                David S. Shihabi, Pennington, NJ
                Richard F. Socha, Newtown, PA
                Hye K. C. Timken, Woodbury, NJ

2.  5,417,949, May 23, 1995, NO.sub.x abatement process; John P.
McWilliams, et al., 423/239.2 :IMAGE AVAILABLE:

ABSTRACT:
A process for converting noxious nitrogen oxides present in
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31 OCT 97

oxygen-containing gaseous effluents to N.sub.2 and H.sub.2 O comprising reacting the gaseous effluent with an effective amount of ammonia in the presence of a catalyst having a Constraint Index of up to about 12, said catalyst having a Constraint Index of up to about 12, said catalyst being composited with a binder containing at least one selected from the group consisting of titania, zirconia, and silica.

US PAT NO: 5,407,880 :IMAGE AVAILABLE: L2: 3 of 9
TITLE: Catalysts for adsorption of hydrocarbons
INVENTOR: Takuya Ikeda, Zushi, Japan
Chiemi Hayashi, Yokohama, Japan
Tetsuo Ito, Fujisawa, Japan
Koji Masuda, Tokyo, Japan
Maki Kamikubo, Yokosuka, Japan

3. 5,407,880, Apr. 18, 1995, Catalysts for adsorption of hydrocarbons; Takuya Ikeda, et al., 502/67; **423/239.2**; 502/4, 87, 439, 527 :IMAGE AVAILABLE:

ABSTRACT:
A catalyst for the adsorption of hydrocarbons is used in an apparatus for the purification of exhaust gas from an internal engine and comprises a honeycomb monolith carrier, a first layer of at least one zeolite having a different crystalline structure, a second layer containing at least one of Pt and Pd as a catalytic component, and a third layer containing Rh as a catalytic component.

US PAT NO: 5,292,991 :IMAGE AVAILABLE: L2: 4 of 9
TITLE: Process for removal of hydrocarbons carbon manoxide, and oxides of nitrogen from oxygen-containing waste gas using molecular sieve-palladium-platinum catalyst on a substrate
INVENTOR: Irwin M. Lachman, Corning, NY
Mallanagouda D. Patil, Corning, NY
Louis S. Socha, Jr., Painted Post, NY
Srinivas H. Swaroop, Painted Post, NY
Raja R. Wusirika, Painted Post, NY

4. 5,292,991, Mar. 8, 1994, Process for removal of hydrocarbons carbon manoxide, and oxides of nitrogen from oxygen-containing waste gas using molecular sieve-palladium-platinum catalyst on a substrate; Irwin M. Lachman, et al., 585/850; 423/213.5, **239.1**, 247; 502/66, 74; 585/852 :IMAGE AVAILABLE:

ABSTRACT:
A process of using a catalyst system for the oxidation of hydrocarbons, carbon monoxide, and the reduction of nitrogen oxides is provided. The unique synergy of the catalyst system, a combination of molecular sieves and noble metals, provides a system that partially or entirely replaces the need for rhodium as a catalyst in three way catalyst systems.

US PAT NO: 5,260,043 :IMAGE AVAILABLE: L2: 5 of 9
TITLE: Catalytic reduction of NOx and carbon monoxide using methane in the presence of oxygen
INVENTOR: Yuejin Li, Wescosville, PA
John N. Armor, Orefield, PA

→ 5. 5,260,043, Nov. 9, 1993, Catalytic reduction of NOx and carbon monoxide using methane in the presence of oxygen; Yuejin Li, et al., **423/239.2**, 212, 246, 351 :IMAGE AVAILABLE:

ABSTRACT:
The invention describes a process for catalytically destroying NOx and carbon monoxide present in oxygen-containing combustion products wherein methane serves as a reductant. The process comprises combusting a fuel

source in the presence of oxygen to form combustion products comprising nitrogen oxides, carbon monoxide and oxygen; introducing methane into the combustion products in an amount such that the total amount of methane to nitrogen oxides present, expressed as a ratio, by volume is greater than about 0.1; and reacting the nitrogen oxides, carbon monoxide, methane and oxygen in the presence of an exchanged crystalline zeolite under conditions sufficient to convert the nitrogen oxides and carbon monoxide to gaseous nitrogen, water and carbon oxides. Suitable catalysts include zeolites having a silicon to aluminum ratio of greater than or equal to about 2.5 which zeolites are exchanged with a cation selected from the group consisting of gallium, niobium, cobalt, nickel, iron, chromium, rhodium and manganese.

US PAT NO: 5,244,852 :IMAGE AVAILABLE: L2: 6 of 9
TITLE: Molecular sieve-palladium-platinum catalyst on a substrate
INVENTOR: Irwin M. Lachman, Corning, NY
Mallanagouda D. Patil, Corning, NY
Louis S. Socha, Jr., Painted Post, NY
Srinivas H. Swaroop, Painted Post, NY
Raja R. Wusirika, Painted Post, NY

6. 5,244,852, Sep. 14, 1993, Molecular sieve-palladium-platinum catalyst on a substrate; Irwin M. Lachman, et al., 502/66; 423/213.5, **239.2**, 247 :IMAGE AVAILABLE:

ABSTRACT:
A catalyst system for the oxidation of hydrocarbons, carbon monoxide, and the reduction of nitrogen oxides is provided. The unique synergy of the catalyst system, a combination of molecular sieves and noble metals, provides a system that partially or entirely replaces the need for rhodium as a catalyst in three way catalyst systems.

US PAT NO: 5,149,512 :IMAGE AVAILABLE: L2: 7 of 9
TITLE: Catalytic reduction of NOx using methane in the presence of oxygen
INVENTOR: Yuejin Li, Allentown, PA
John N. Armor, Orefield, PA

(7.) 5,149,512, Sep. 22, 1992, Catalytic reduction of NOx using methane in the presence of oxygen; Yuejin Li, et al., **423/239.2**, 212, 351 :IMAGE AVAILABLE:

ABSTRACT:
The invention describes a catalytic process for destroying NOx from oxygen-containing combustion products wherein methane serves as a reductant. The process comprises contacting the NOx-containing combustion products with a desired amount of methane and oxygen in the presence of a metal-exchanged crystalline zeolite having a silicon to aluminum ratio of greater than or equal to about 2.5 under conditions sufficient to effect conversion to gaseous nitrogen, water and carbon oxides. The zeolites are exchanged with a cation selection from the group consisting of cobalt, nickel, iron, chromium, rhodium and manganese.

US PAT NO: 5,037,538 :IMAGE AVAILABLE: L2: 8 of 9
TITLE: Catalytic cracking process with isolated catalyst for conversion of NO.sub.x
INVENTOR: Arthur A. Chin, Cherry Hill, NJ
Jonathan E. Child, Cherry Hill, NJ
Paul H. Schipper, Wilmington, DE

8. 5,037,538, Aug. 6, 1991, Catalytic cracking process with isolated catalyst for conversion of NO.sub.x; Arthur A. Chin, et al., 208/113, 120, 149, 164; **423/239.1**; 502/41, 42 :IMAGE AVAILABLE:

ABSTRACT:

Oxides of nitrogen (NO.sub.x) emissions from an FCC regenerator are reduced by adding a DeNO.sub.x catalyst to the FCC regenerator in a form whereby the DeNO.sub.x catalyst remains segregated within the FCC regenerator. This permits use of a DeNO.sub.x catalyst without regard to the effect of the DeNO.sub.x catalyst on the catalytic cracking reaction. Floating hollow spheres, or catalyst fines, containing the DeNO.sub.x catalyst are preferred.

US PAT NO: 4,961,917 :IMAGE AVAILABLE: L2: 9 of 9
TITLE: Method for reduction of nitrogen oxides with ammonia using promoted zeolite catalysts
INVENTOR: John W. Byrne, Edison, NJ

9. 4,961,917, Oct. 9, 1990, Method for reduction of nitrogen oxides with ammonia using promoted zeolite catalysts; John W. Byrne, **423/239.2** :IMAGE AVAILABLE:

ABSTRACT:
A method in accordance with the invention comprises passing through a zeolite catalyst as described below, a gaseous stream containing nitrogen oxides, ammonia and oxygen to selectively catalyze the reduction of nitrogen oxides and, if excess or unreacted ammonia is present, to oxidize the excess of unreacted ammonia with oxygen to hydrogen and water. The method includes the use of a zeolite catalyst composition which comprises a metal (e.g., iron or copper) promoted zeolite, the zeolite being characterized by having a silica to alumina ratio of at least about 10 and a pore structure which is interconnected in all three crystallographic dimensions by pores having an average kinetic pore diameter of at least about 7 Angstroms. Promoted zeolites of the above type have demonstrated high tolerance for sulfur poisoning, good activity for the selective catalytic reduction of nitrogen oxides with ammonia, good activity for the oxidation of ammonia with oxygen, and the retention of such good activities even under high temperature operations, e.g., 400.degree. C. or higher, and hydrothermal conditions.

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=> s l1 and 423/213?/ccls
           947 423/213?/CCLS
L3           7 L1 AND 423/213?/CCLS

=> d l3 1-7 ti, in, cit, ab
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US PAT NO: 5,662,869 :IMAGE AVAILABLE: L3: 1 of 7
TITLE: Exhaust gas purification method and apparatus therefor
INVENTOR: Fumio Abe, Handa, Japan
Junichi Suzuki, Kuwana, Japan
Masato Ogawa, Komaki, Japan

1. 5,662,869, Sep. 2, 1997, Exhaust gas purification method and apparatus therefor; Fumio Abe, et al., 422/171; 60/274, 285, 297; 422/172, 177, 178, 180, 211, 222; **423/213.2, 213.5, 213.7** :IMAGE AVAILABLE:

ABSTRACT:
An exhaust gas purification system includes an adsorbent containing an adsorbent element for adsorbing harmful compounds such as hydrocarbon in an exhaust gas and a catalyst containing a catalyst element for lowering the harmful compounds in the exhaust gas, each disposed in the exhaust gas pipe of an internal combustion engine. When an oxidizing gas is added to the exhaust gas or amounts of combustion gas and fuel are regulated, for a given period, in the process in which the hydrocarbon in the exhaust gas produced at the cold start-up of the internal combustion engine are adsorbed by the adsorbent and desorbed from the adsorbent as a temperature of the adsorbent is increased by the exhaust gas, an exhaust gas composition containing excessive oxygen is provided and the desorbed hydrocarbon are oxidized on the catalyst. With this arrangement, the

harmful compounds in the exhaust gas, in particular, the hydrocarbon produced in a large amount at the cold start-up of the engine can be effectively purified.

US PAT NO: 5,538,697 :IMAGE AVAILABLE: L3: 2 of 7
TITLE: Adsorbent-catalyst for exhaust gas purification, adsorbent for exhaust gas purification, system for exhaust gas purification, and method for exhaust gas purification
INVENTOR: Fumio Abe, Handa, Japan
Takashi Harada, Nagoya, Japan
Masato Ogawa, Komaki, Japan

2. 5,538,697, Jul. 23, 1996, Adsorbent-catalyst for exhaust gas purification, adsorbent for exhaust gas purification, system for exhaust gas purification, and method for exhaust gas purification; Fumio Abe, et al., 422/171; 60/274, 297; 422/169, 174, 177, 180, 199, 211, 222; 423/212, **213.7**; 502/527 :IMAGE AVAILABLE:

ABSTRACT:
An adsorbent-catalyst for exhaust gas purification, has a honeycomb structure having a large number of passages divided by partition walls, substantially parallel to the flow direction of an exhaust gas to be purified, an adsorbent layer having a hydrocarbon adsorbability, supported on the honeycomb structure, and a catalyst layer having a three-way catalytic activity or an oxidizing ability, supported on the honeycomb structure, in which adsorbent-catalyst the adsorbent layer and the catalyst layer are separately supported on the honeycomb structure in all or part of the cross sections of the adsorbent-catalyst perpendicular to the flow direction of the exhaust gas.

US PAT NO: 5,417,947 :IMAGE AVAILABLE: L3: 3 of 7
TITLE: System and method for removing hydrocarbons from gaseous mixtures
INVENTOR: William Hertl, Corning, NY
Irwin M. Lachman, Corning, NY

3. 5,417,947, May 23, 1995, System and method for removing hydrocarbons from gaseous mixtures; William Hertl, et al., 423/212; 60/297, 311; **423/213.2**, **213.7**; 585/820, 822 :IMAGE AVAILABLE:

ABSTRACT:
A method and system for removing low molecular weight olefins from gases generated during the first five minutes of start-up of an internal combustion engine. The mixture is contacted with hydrophilic material to remove at least some of the water therefrom. The hydrophilic material can be molecular sieve having pores large enough for adsorption of water molecules and small enough to prevent molecules larger than water from being adsorbed, high surface area aluminas, precursors for high surface area aluminas, high surface area silicas, and combinations thereof. The mixture is then contacted with a downstream hydrocarbon-removing agent for removing the olefins. The hydrocarbon-removing agent can be at least one molecular sieve which can be pentasil zeolites, faujasite zeolites, mordenite, **beta zeolites**, carbon molecular sieve, metallophosphates, aluminophosphates, silicoaluminophosphates, and combinations thereof.

US PAT NO: 5,292,991 :IMAGE AVAILABLE: L3: 4 of 7
TITLE: Process for removal of hydrocarbons carbon manoxide, and oxides of nitrogen from oxygen-containing waste gas using molecular sieve-palladium-platinum catalyst on a substrate
INVENTOR: Irwin M. Lachman, Corning, NY
Mallanagouda D. Patil, Corning, NY
Louis S. Socha, Jr., Painted Post, NY
Srinivas H. Swaroop, Painted Post, NY

Raja R. Wusirika, Painted Post, NY

4. 5,292,991, Mar. 8, 1994, Process for removal of hydrocarbons carbon manoxide, and oxides of nitrogen from oxygen-containing waste gas using molecular sieve-palladium-platinum catalyst on a substrate; Irwin M. Lachman, et al., 585/850; **423/213.5**, 239.1, 247; 502/66, 74; 585/852 :IMAGE AVAILABLE:

ABSTRACT:
A process of using a catalyst system for the oxidation of hydrocarbons, carbon monoxide, and the reduction of nitrogen oxides is provided. The unique synergy of the catalyst system, a combination of molecular sieves and noble metals, provides a system that partially or entirely replaces the need for rhodium as a catalyst in three way catalyst systems.

US PAT NO: 5,284,638 :IMAGE AVAILABLE: L3: 5 of 7
TITLE: System and method for removing hydrocarbons from gaseous mixtures using multiple adsorbing agents
INVENTOR: William Hertl, Corning, NY
Irwin M. Lachman, Corning, NY
Mallanagouda D. Patil, Corning, NY

5. 5,284,638, Feb. 8, 1994, System and method for removing hydrocarbons from gaseous mixtures using multiple adsorbing agents; William Hertl, et al., 423/245.1, 210, **213.2**; 502/407, 414, 415 :IMAGE AVAILABLE:

ABSTRACT:
A system and method are disclosed for removing hydrocarbons from a gaseous mixture, which comprises selecting a plurality of agents which are effective for adsorbing hydrocarbons at predetermined temperatures, wherein for at least two of the adsorbing agents, the temperatures at which the maximum adsorption rates for the hydrocarbons occur, are different from one another, and contacting the adsorbing agents with the gaseous mixture at the predetermined temperatures to cause adsorption of the hydrocarbons. A multistage catalyst system for converting NO.sub.x, CO, and hydrocarbons from a gaseous mixture to innocuous products is disclosed, which comprises the above described system for removing hydrocarbons as one stage, and a main body catalyst stage for converting NO.sub.x, CO, and hydrocarbons to innocuous products, wherein the gaseous mixture passes from one stage to the other.

US PAT NO: 5,244,852 :IMAGE AVAILABLE: L3: 6 of 7
TITLE: Molecular sieve-palladium-platinum catalyst on a substrate
INVENTOR: Irwin M. Lachman, Corning, NY
Mallanagouda D. Patil, Corning, NY
Louis S. Socha, Jr., Painted Post, NY
Srinivas H. Swaroop, Painted Post, NY
Raja R. Wusirika, Painted Post, NY

6. 5,244,852, Sep. 14, 1993, Molecular sieve-palladium-platinum catalyst on a substrate; Irwin M. Lachman, et al., 502/66; **423/213.5**, 239.2, 247 :IMAGE AVAILABLE:

ABSTRACT:
A catalyst system for the oxidation of hydrocarbons, carbon monoxide, and the reduction of nitrogen oxides is provided. The unique synergy of the catalyst system, a combination of molecular sieves and noble metals, provides a system that partially or entirely replaces the need for rhodium as a catalyst in three way catalyst systems.

US PAT NO: 5,212,130 :IMAGE AVAILABLE: L3: 7 of 7
TITLE: High surface area washcoated substrate and method for producing same
INVENTOR: William P. Addiego, Corning, NY
Irwin M. Lachman, Corning, NY

Mallanagouda D. Patil, Corning, NY
Jimmie [redacted] Williams, Painted Post, NY
Melcenia R. Williams, Corning, NY
Kenneth E. Zaun, Corning, NY

7. 5,212,130, May 18, 1993, High surface area washcoated substrate and method for producing same; William P. Addiego, et al., 502/60; **423/213.5**; 502/300, 341, 439 :IMAGE AVAILABLE:

ABSTRACT:
A washcoated substrate and method for producing the washcoat on the substrate are disclosed which comprises forming a slurry comprising at least one ionizable compound of A, where A is selected from barium, strontium, and combinations thereof, and A is in an amount sufficient to yield AO in an amount of about 0.2-20% by weight of the washcoat, an aluminum oxide yielding species, and a medium wherein at least a portion of the ionizable compound ionizes to form ions of A, contacting the slurry with a substrate to form a green coating containing A and the aluminum oxide yielding species thereon, and heat treating the resulting green-coated substrate at a temperature and for a time sufficient to form a washcoat consisting essentially of AO-Al.sub.2 O.sub.3 on the substrate, wherein A is homogeneously distributed throughout the Al.sub.2 O.sub.3, the washcoat having a specific surface area, as measured by the N.sub.2 BET method, of at least about 50 m.sup.2 /g, which surface area remains after at least two repeated exposures of the washcoat to temperatures of greater than about 500.degree. C. Additionally, the slurry solid can be removed from the liquid, fired to form a material comprising AO-Al.sub.2 O.sub.3, and another slurry formed of the fired material and a medium. This slurry can then be contacted with a substrate to form the green coating which is then heat treated to form the washcoat.

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(FILE 'USPAT' ENTERED AT 14:09:19 ON 31 OCT 1997)
L1 436 S BETA(W)ZEOLITE?
L2 9 S L1 AND 423/239?/CCLS
L3 7 S L1 AND 423/213?/CCLS

=> s l1 and 423/212/ccls
292 423/212/CCLS
L4 5 L1 AND 423/212/CCLS

=> d l4 1-5 ti, in, cit, ab

US PAT NO: 5,538,697 :IMAGE AVAILABLE: L4: 1 of 5
TITLE: Adsorbent-catalyst for exhaust gas purification, adsorbent for exhaust gas purification, system for exhaust gas purification, and method for exhaust gas purification
INVENTOR: Fumio Abe, Handa, Japan
Takashi Harada, Nagoya, Japan
Masato Ogawa, Komaki, Japan

1. 5,538,697, Jul. 23, 1996, Adsorbent-catalyst for exhaust gas purification, adsorbent for exhaust gas purification, system for exhaust gas purification, and method for exhaust gas purification; Fumio Abe, et al., 422/171; 60/274, 297; 422/169, 174, 177, 180, 199, 211, 222; **423/212**, 213.7; 502/527 :IMAGE AVAILABLE:

ABSTRACT:
An adsorbent-catalyst for exhaust gas purification, has a honeycomb structure having a large number of passages divided by partition walls, substantially parallel to the flow direction of an exhaust gas to be purified, an adsorbent layer having a hydrocarbon adsorbability, supported on the honeycomb structure, and a catalyst layer having a

three-way catalytic activity or an oxidizing ability, supported on the honeycomb structure, which adsorbent-catalyst the adsorbent layer and the catalyst layer are separately supported on the honeycomb structure in all or part of the cross sections of the adsorbent-catalyst perpendicular to the flow direction of the exhaust gas.

US PAT NO: 5,417,947 :IMAGE AVAILABLE: L4: 2 of 5
TITLE: System and method for removing hydrocarbons from gaseous mixtures
INVENTOR: William Hertl, Corning, NY
Irwin M. Lachman, Corning, NY

2. 5,417,947, May 23, 1995, System and method for removing hydrocarbons from gaseous mixtures; William Hertl, et al., **423/212**; 60/297, 311; 423/213.2, 213.7; 585/820, 822 :IMAGE AVAILABLE:

ABSTRACT:
A method and system for removing low molecular weight olefins from gases generated during the first five minutes of start-up of an internal combustion engine. The mixture is contacted with hydrophilic material to remove at least some of the water therefrom. The hydrophilic material can be molecular sieve having pores large enough for adsorption of water molecules and small enough to prevent molecules larger than water from being adsorbed, high surface area aluminas, precursors for high surface area aluminas, high surface area silicas, and combinations thereof. The mixture is then contacted with a downstream hydrocarbon-removing agent for removing the olefins. The hydrocarbon-removing agent can be at least one molecular sieve which can be pentasil zeolites, faujasite zeolites, mordenite, **beta zeolites**, carbon molecular sieve, metallophosphates, aluminophosphates, silicoaluminophosphates, and combinations thereof.

US PAT NO: 5,260,043 :IMAGE AVAILABLE: L4: 3 of 5
TITLE: Catalytic reduction of NOx and carbon monoxide using methane in the presence of oxygen
INVENTOR: Yuejin Li, Wescosville, PA
John N. Armor, Orefield, PA

3. 5,260,043, Nov. 9, 1993, Catalytic reduction of NOx and carbon monoxide using methane in the presence of oxygen; Yuejin Li, et al., 423/239.2, **212**, 246, 351 :IMAGE AVAILABLE:

ABSTRACT:
The invention describes a process for catalytically destroying NOx and carbon monoxide present in oxygen-containing combustion products wherein methane serves as a reductant. The process comprises combusting a fuel source in the presence of oxygen to form combustion products comprising nitrogen oxides, carbon monoxide and oxygen; introducing methane into the combustion products in an amount such that the total amount of methane to nitrogen oxides present, expressed as a ratio, by volume is greater than about 0.1; and reacting the nitrogen oxides, carbon monoxide, methane and oxygen in the presence of an exchanged crystalline zeolite under conditions sufficient to convert the nitrogen oxides and carbon monoxide to gaseous nitrogen, water and carbon oxides. Suitable catalysts include zeolites having a silicon to aluminum ratio of greater than or equal to about 2.5 which zeolites are exchanged with a cation selected from the group consisting of gallium, niobium, cobalt, nickel, iron, chromium, rhodium and manganese.

US PAT NO: 5,149,512 :IMAGE AVAILABLE: L4: 4 of 5
TITLE: Catalytic reduction of NOx using methane in the presence of oxygen
INVENTOR: Yuejin Li, Allentown, PA
John N. Armor, Orefield, PA

4. 5,149,512, Sep. 22, 1992, Catalytic reduction of NOx using methane in the presence of oxyge[redacted] Yuejin Li, et al., 423/239.2, [redacted], 351 :IMAGE AVAILABLE:

ABSTRACT:
The invention describes a catalytic process for destroying NOx from oxygen-containing combustion products wherein methane serves as a reductant. The process comprises contacting the NOx-containing combustion products with a desired amount of methane and oxygen in the presence of a metal-exchanged crystalline zeolite having a silicon to aluminum ratio of greater than or equal to about 2.5 under conditions sufficient to effect conversion to gaseous nitrogen, water and carbon oxides. The zeolites are exchanged with a cation selection from the group consisting of cobalt, nickel, iron, chromium, rhodium and manganese.

US PAT NO: 4,402,714 :IMAGE AVAILABLE: L4: 5 of 5
TITLE: Method for retarding corrosion in mufflers
INVENTOR: Walter P. Fethke, Monroe, NY
Stephen R. Dunne, Danbury, CT
Joseph P. Ausikaitis, White Plains, NY

5. 4,402,714, Sep. 6, 1983, Method for retarding corrosion in mufflers; Walter P. Fethke, et al., 95/117; 60/311; 95/902; 181/244; **423/212** :IMAGE AVAILABLE:

ABSTRACT:
A non-catalytic method for extending the life of the metal parts of an automobile muffler which comprises placing an adsorbent mass, preferably of crystalline zeolitic molecular sieve, in the internal space thereof, in sufficient amount to prevent condensation of water vapor from the engine exhaust gases on the walls thereof after engine shutdown. This procedure significantly inhibits corrosion of the metal parts.

=> s cobalt
L5 68163 COBALT

=> s l1 and l5
L6 195 L1 AND L5

=> s l1(p)l5
L7 11 L1(P)L5

=> d l7 1-11 ti, in, cit, ab

US PAT NO: 5,648,562 :IMAGE AVAILABLE: L7: 1 of 11
TITLE: Oxidation process
INVENTOR: Clive A. Henrick, Palo Alto, CA

1. 5,648,562, Jul. 15, 1997, Oxidation process; Clive A. Henrick, 568/774 :IMAGE AVAILABLE:

ABSTRACT:
Process for oxidizing 1,4-dichlorobenzene using a secondary synthesized zeolites or zeolite-like metallosilicates or a primary synthesized zeolite-like metallosilicate and a peroxide.

US PAT NO: 5,603,821 :IMAGE AVAILABLE: L7: 2 of 11
TITLE: Low-aluminum boron beta zeolite
INVENTOR: Lawrence W. Jossens, Albany, CA
Donald S. Santilli, Larkspur, CA
James N. Ziemer, Hercules, CA

2. 5,603,821, Feb. 18, 1997, Low-aluminum boron beta zeolite; Lawrence W. Jossens, et al., 208/111, 108, 113, 114, 120 :IMAGE AVAILABLE:

ABSTRACT:
A crystalline low-aluminum boron beta zeolite is prepared using a diquaternary ion as a template.

US PAT NO: 5,494,870 :IMAGE AVAILABLE: L7: 3 of 11
TITLE: Distillate hydrogenation catalyst
INVENTOR: Simon G. Kukes, Naperville, IL
Frederick T. Clark, Wheaton, IL
P. Donald Hopkins, St. Charles, IL

3. 5,494,870, Feb. 27, 1996, Distillate hydrogenation catalyst; Simon G. Kukes, et al., 502/66, 74 :IMAGE AVAILABLE:

ABSTRACT:
A process and catalyst are provided for the hydrogenation of a hydrocarbon feedstock consisting essentially of hydrocarbon boiling between about 150.degree. F. and 700.degree. F. at atmospheric pressure. The process comprises reacting the feedstock with hydrogen at hydrogenation conditions in the presence of a catalyst comprising hydrogenation metals and a support comprising beta zeolite. The hydrogenation metals comprise from about 0.1 percent by weight to about 2.0 percent by weight each of palladium and platinum measured as a percentage of the catalyst. The beta zeolite comprises from about 1 ppm by weight to about 3.0 percent by weight sodium calculated as a percentage of said beta zeolite.

US PAT NO: 5,393,407 :IMAGE AVAILABLE: L7: 4 of 11
TITLE: Hydrocarbon conversion utilizing a low-aluminum boron beta zeolite
INVENTOR: Stacey I. Zones, San Francisco, CA
Dennis L. Holtermann, Crockett, CA
Lawrence W. Jossens, Albany, CA
Donald S. Santilli, Larkspur, CA
Andrew Rainis, Walnut Creek, CA

4. 5,393,407, Feb. 28, 1995, Hydrocarbon conversion utilizing a low-aluminum boron beta zeolite; Stacey I. Zones, et al., 208/46, 134, 135, 137, 138; 585/467, 525, 533, 739, 740 :IMAGE AVAILABLE:

ABSTRACT:
A crystalline low-aluminum boron beta zeolite is prepared using a diquaternary ion as a template.

US PAT NO: 5,364,981 :IMAGE AVAILABLE: L7: 5 of 11
TITLE: On-step synthesis of methyl t-butyl ether from t-butanol using platinum/palladium modified .beta.-zeolite catalysts
INVENTOR: John F. Knifton, Austin, TX
Pei-Shing E. Dai, Port Arthur, TX

5. 5,364,981, Nov. 15, 1994, On-step synthesis of methyl t-butyl ether from t-butanol using platinum/palladium modified .beta.-zeolite catalysts; John F. Knifton, et al., 568/698 :IMAGE AVAILABLE:

ABSTRACT:
Disclosed is an improved process for preparing alkyl tertiary alkyl ethers, especially methyl t-butyl ether, in one step which comprises reacting tertiary butanol and methanol in the presence of a catalyst comprising .beta.-zeolite modified with one or more metals selected from Group VIII of the Periodic Table, and optionally further modified with a halogen or a Group IB metal, with an alumina binder, at a temperature of about 20.degree. C. to 250.degree. C. and atmospheric pressure to about 1000 psig, wherein when the temperature is in the operating range above about 140.degree. C., the product comprises a two-phase mix of an MTBE-isobutylene and, optionally, diisobutylene product-rich phase and a

heavier aqueous ethanol-rich phase.

US PAT NO: 5,346,612 :IMAGE AVAILABLE: L7: 6 of 11
TITLE: Distillate hydrogenation utilizing a catalyst comprising platinum, palladium, and a beta zeolite support
INVENTOR: Simon G. Kukes, Naperville, IL
Frederick T. Clark, Wheaton, IL
P. Donald Hopkins, St. Charles, IL

6. 5,346,612, Sep. 13, 1994, Distillate hydrogenation utilizing a catalyst comprising platinum, palladium, and a beta zeolite support; Simon G. Kukes, et al., 208/143, 144, 217, 251H, 254H; 585/266, 275 :IMAGE AVAILABLE:

ABSTRACT:
A process and catalyst are provided for the hydrogenation of a hydrocarbon feedstock consisting essentially of hydrocarbon boiling between about 150.degree. F. and 700.degree. F. at atmospheric pressure. The process comprises reacting the feedstock with hydrogen at hydrogenation conditions in the presence of a catalyst comprising hydrogenation metals and a support comprising beta zeolite. The hydrogenation metals comprise from about 0.1 percent by weight to about 2.0 percent by weight each of palladium and platinum measured as a percentage of the catalyst. The beta zeolite comprises from about 1 ppm by weight to about 3.0 percent by weight sodium calculated as a percentage of said beta zeolite.

US PAT NO: 5,260,043 :IMAGE AVAILABLE: L7: 7 of 11
TITLE: Catalytic reduction of NOx and carbon monoxide using methane in the presence of oxygen
INVENTOR: Yuejin Li, Wescosville, PA
John N. Armor, Orefield, PA

7. 5,260,043, Nov. 9, 1993, Catalytic reduction of NOx and carbon monoxide using methane in the presence of oxygen; Yuejin Li, et al., 423/239.2, 212, 246, 351 :IMAGE AVAILABLE:

ABSTRACT:
The invention describes a process for catalytically destroying NOx and carbon monoxide present in oxygen-containing combustion products wherein methane serves as a reductant. The process comprises combusting a fuel source in the presence of oxygen to form combustion products comprising nitrogen oxides, carbon monoxide and oxygen; introducing methane into the combustion products in an amount such that the total amount of methane to nitrogen oxides present, expressed as a ratio, by volume is greater than about 0.1; and reacting the nitrogen oxides, carbon monoxide, methane and oxygen in the presence of an exchanged crystalline zeolite under conditions sufficient to convert the nitrogen oxides and carbon monoxide to gaseous nitrogen, water and carbon oxides. Suitable catalysts include zeolites having a silicon to aluminum ratio of greater than or equal to about 2.5 which zeolites are exchanged with a cation selected from the group consisting of gallium, niobium, cobalt, nickel, iron, chromium, rhodium and manganese.

US PAT NO: 5,166,111 :IMAGE AVAILABLE: L7: 8 of 11
TITLE: Low-aluminum boron beta zeolite
INVENTOR: Stacey I. Zones, San Francisco, CA
Dennis L. Holtermann, Crockett, CA
Lawrence W. Jossens, Albany, CA
Donald S. Santilli, Larkspur, CA
Andrew Rainis, Walnut Creek, CA

8. 5,166,111, Nov. 24, 1992, Low-aluminum boron beta zeolite; Stacey I. Zones, et al., 502/64; 423/279, 704, 718 :IMAGE AVAILABLE:

ABSTRACT:
A crystalline low-alu[redacted]um boron beta zeolite is prepa[redacted] using a diquaternary ion as a template.

US PAT NO: 5,155,075 :IMAGE AVAILABLE: L7: 9 of 11
TITLE: Low temperature regeneration of coke deactivated reforming catalysts
INVENTOR: Robert A. Innes, San Rafael, CA
Dennis L. Holtermann, Crockett, CA
Bernard F. Mulaskey, Fairfax, CA

9. 5,155,075, Oct. 13, 1992, Low temperature regeneration of coke deactivated reforming catalysts; Robert A. Innes, et al., 502/52; 208/138, 140; 502/38, 50 :IMAGE AVAILABLE:

ABSTRACT:
A process for regenerating a coke contaminated reforming catalyst comprising platinum on a molecular sieve, said process consisting essentially of contacting said catalyst with a halogen-free oxygen-containing gas at a temperature of less than 780.degree. F. for a sufficient period of time such that the aromatization activity is restored to within 20.degree. F. of the activity said catalyst possessed at the start of the previous run cycle.

US PAT NO: 5,149,512 :IMAGE AVAILABLE: L7: 10 of 11
TITLE: Catalytic reduction of NOx using methane in the presence of oxygen
INVENTOR: Yuejin Li, Allentown, PA
John N. Armor, Orefield, PA

10. 5,149,512, Sep. 22, 1992, Catalytic reduction of NOx using methane in the presence of oxygen; Yuejin Li, et al., 423/239.2, 212, 351 :IMAGE AVAILABLE:

ABSTRACT:
The invention describes a catalytic process for destroying NOx from oxygen-containing combustion products wherein methane serves as a reductant. The process comprises contacting the NOx-containing combustion products with a desired amount of methane and oxygen in the presence of a metal-exchanged crystalline zeolite having a silicon to aluminum ratio of greater than or equal to about 2.5 under conditions sufficient to effect conversion to gaseous nitrogen, water and carbon oxides. The zeolites are exchanged with a cation selection from the group consisting of cobalt, nickel, iron, chromium, rhodium and manganese.

US PAT NO: 5,011,529 :IMAGE AVAILABLE: L7: 11 of 11
TITLE: Cured surfaces and a process of curing
INVENTOR: Kathryn E. Hogue, Corning, NY
Srinivas H. Swaroop, Painted Post, NY
Raja R. Wusirika, Painted Post, NY

11. 5,011,529, Apr. 30, 1991, Cured surfaces and a process of curing; Kathryn E. Hogue, et al., 75/235, 232; 419/2, 19; 428/469, 472.2, 539.5 :IMAGE AVAILABLE:

ABSTRACT:
A cured sintered porous metal structure comprising aluminum and aluminum alloys is presented comprising an aluminum oxide durable surface integral to the structure. The surface layer is enhanced in aluminum while the underlying structure is thereby depleted in aluminum. The structure exhibits surface and interfacial durability.

=> d his

(FILE 'USPAT' ENTERED AT 14:09:19 ON 31 OCT 1997)

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L1          436 S BETA(W)ZEOLITE?
L2            9 S L1 AND 423/239?/CCLS
L3            7 S L1 AND 423/213?/CCLS
L4            5 S L1 AND 423/212/CCLS
L5        68163 S COBALT
L6          195 S L1 AND L5
L7           11 S L1(P)L5

=> file all
FILE 'JPO' ENTERED AT 14:13:08 ON 31 OCT 1997

  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *                        G  P  I                                *
  *     J A P A N E S E   P A T E N T   A B S T R A C T S        *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *


FILE 'EPO' ENTERED AT 14:13:08 ON 31 OCT 1997

  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *                        G  P  I                                *
  *     E U R O P E A N   P A T E N T   A B S T R A C T S        *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *


FILE 'USPAT' ENTERED AT 14:13:08 ON 31 OCT 1997

  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *               W E L C O M E   T O   T H E                    *
  *         U. S.   P A T E N T   T E X T   F I L E              *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

FILE 'USOCR' ENTERED AT 14:13:08 ON 31 OCT 1997

=> s l7
FILE 'JPO'
         28816 BETA
          5751 ZEOLITE?
          8003 COBALT
L8           0 L1(P)L5

FILE 'EPO'
         15470 BETA
          5101 ZEOLITE?
          6625 COBALT
L9           1 L1(P)L5

FILE 'USPAT'
L10         11 L1(P)L5

FILE 'USOCR'
          4398 BETA
           978 ZEOLITE?
          6474 COBALT
L11          0 L1(P)L5

TOTAL FOR ALL FILES
L12         12 L7

=> d l9 ti, in, cit, ab

EP000652040A1                                          L9: 1 of 1

TITLE:     Process and catalyst for reducing NOx in combustion exhaust
gases.
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INVENTOR: BELLUSSI, GIUSEPPE (IT)
SABATINO, LUIGINA MARIA FLORA (IT)
TABATA, TAKESHI (JP)
KOKITSU, MIKAKO (JP)
OKADA, OSAMU (JP)

1. EP000652040A1, May 10, 1995, Process and catalyst for reducing NOx in combustion exhaust gases.; BELLUSSI, GIUSEPPE (IT), et al.,
INT-CL: :6: B01D53/56; :6: B01D53/86; :6: B01D53/94; :6: B01J29/76; :6: B01J29/06
EUR-CL: B01D53/86; B01D53/94; B01J29/34

ABSTRACT:

The present invention relates to a process for the catalytic reduction of nitrogen oxides contained in exhaust gases from combustions, which process comprises bringing said exhaust gases into contact with a **Beta Zeolite** exchanged with suitable amounts of **cobalt** salts, in the presence of a light hydrocarbon as the reducing agent.

The present invention relates also to a catalyst for such a process, which catalyst comprises a **Beta zeolite** exchanged with **cobalt** salts, characterized by a Co: zeolite Al molar ratio of <0.5.